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What are parents' perceptions on immunizations causing autism spectrum disorders?

Shanae Nicole Blake

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WHAT ARE PARENTS' PERCEPTIONS ON IMMUNIZATIONS CAUSING AUTISM SPECTRUM DISORDERS?

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Social Work

by
Shanae Nicole Blake
June 2013
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June 2013
Approved by:

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6-10-13 Date
ABSTRACT

The purpose of this study was to identify parental perceptions of immunizations causing autism. Participants were gathered using the social media website Facebook, as well as posting the survey on an autism forum. A quantitative primary data analysis design was used to determine if parents felt immunizations caused autism, and if their beliefs caused them to delay or refuse vaccinations. Research found that although the majority of parents had concerns about immunizations causing autism, it did not deter many of them from getting their child vaccinated anyway. This may suggest that parents are for the most part unsure if vaccinations cause autism, but it seems that they are more concerned about the risks of not getting their children vaccinated. In order to reduce some of the confusion parents face when it comes to vaccinations and autism, the social work profession could help by educating the parents on this topic. Social workers that work with children and families could make it a routine practice to hand out information about the safety concerns of vaccinations and information about autism to all parents.
ACKNOWLEDGMENTS

I would first like to acknowledge my family. My parents have been there from the very beginning of this long hard road. They have provided more support than I could have ever hoped for. They have been there for me emotionally, physically, financially, and every other way possible. I can’t imagine how I would have completed this program without them. I would also like to acknowledge Dr. Herb Shon for assisting me throughout this whole thesis process. Thank you for being there for any issue I came across, and giving me great ideas for my project. Thanks for the dealing with the late night emails and the constant confusion I had with the results section. I couldn’t have finished this thesis without you. Thank you all!
DEDICATION

This thesis is dedicated to first and foremost God. Without him giving me the strength, confidence, and determination, I would not have made it this far. I thank him for blessing me with amazing parents who helped me become the woman I am today. I didn’t always make it easy, but my parents never gave up on me and remained by my side through everything. I also want to dedicate this thesis to my great grandmother Pearlee Hill. She is my angel who I know looks over me every day. I love you all!
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CHAPTER ONE

INTRODUCTION

Chapter 1 will clearly define the problem, present an overview of the specific client, and a description of the proposed research project. The purpose of the study and the significance of the project for the social work practice will also be examined.

Problem Statement

Autism spectrum disorders (ASDs) can be defined as a group of developmental disabilities characterized by abnormal development in areas such as behavior, communication, and socialization (Rice, 2009). Autism spectrum disorders vary in range and severity, and encompass a wide variety of symptoms. Autistic disorder (AD), often referred to as autism or classical ASD, is the most severe form of ASD. Other milder forms of ASDs include Asperger's syndrome, childhood disintegration disorder, and pervasive developmental disorders not otherwise specified (often referred to as PDD-NOS) (Autism Fact Sheet, 2009).

A key feature of ASDs is impaired interaction. An infant with ASD can be described as being unresponsive to
people, or may focus on a particular item for long periods of time. An infant with ASD may also appear to be developing normally, and later become indifferent and withdraw from social interaction. As an infant with ASD develops into a child, they may fail to respond to their name and avoid eye contact with other individuals. These children also have difficulties in understanding social cues such as facial expressions and tone of voice, and are often unable to recognize what others are feeling or thinking due to their lack of watching others faces. Other characteristics of ASDs include a lack of empathy, referring to themselves in the third person, self-abusive behavior such as biting or head-banging, repetitive movements such as rocking or twirling, lack of interactive play with themselves or others, and constantly speaking about the same topics with little regard for others and their interests. It is also common for children with ASD to have co-occurring disorders such as Fragile X syndrome, tuberous sclerosis, epileptic seizures, Tourette's syndrome, learning disabilities, and attention deficit disorder (ADD) (Autism Fact Sheet, 2009).

Autism spectrum disorders are said to occur in all racial, ethnic, and socioeconomic groups. Although there
are no limits on who this developmental disability can affect, it is shown that boys are four times more likely to have ASDs than girls. In this current time, it is estimated that ASDs affect about one in every 110 children in the United States alone (Facts About ASDs, 2010). This is a significant rise in numbers from 1987, with data showing an increase of 634% in the past two decades (King & Bearman, 2009). Government autism statistics have also shown prevalence rates of 10 to 17% annually for the past several years (What is Autism, 2012).

In the not so distant past, researchers had no idea about the causes of ASDs. In recent years however, they have discovered that ASDs may be caused by both genetic and environmental factors. Researchers have found several genes associated with the disorders, and have discovered that individuals with ASD have abnormal levels of serotonin and other neurotransmitters in the brain. These abnormalities suggest that ASDs may be caused by a disruption in brain development while in-utero, caused by defects in genes that control brain growth and regulate how brain cells communicate with each other.

Although research suggest that ASDs may be caused by environmental and genetic factors, many people still
believe that ASDs are caused by the growing number of vaccines that children are expected to be given as infants. The suspected vaccinations which have been a cause for concern include diphtheria, pertussis, tetanus, and other vaccines that contain the mercury-based preservative thimerosal. The measles, mumps, and rubella (MMR) vaccine have also been blamed due to it containing live (attenuated) viruses (Fitzpatrick, 2003).

Although the government insists that vaccines do not cause ASDs, it continues to be an escalating problem in American society, causing chaos and controversy around the world. In response to the many concerns of the American public, the CDC launched an investigation on the safety of vaccines, and conducted a series of studies to prove that vaccines were in fact safe. In one study conducted in 2003 involving 140,000 children, the CDC found no relationship between thimerosal and ASDS. By 2004, the Institute of Medicine (IOM) reviewed over 200 epidemiological and biological studies for any link between autism and immunizations. In conclusion of their efforts, the IOM determined there was no evidence of any causal relationship between MMR or any other vaccine and autism (Gross, 2009, pg. 2).
Despite overwhelming research concluding that vaccines do not cause ASDs, many parents are still refusing to get their children vaccinated due to the fear that their child may develop autism, or another disorder on the spectrum. It is important to investigate parents' reactions and feelings towards this dilemma to determine the number of parents who refuse to get their children vaccinated. If parents are refusing to vaccinate their children, this can become a major health crisis. All of the diseases that are prevented each year may skyrocket, and some that have long since passed may make their dreaded return.

Purpose of the Study

The purpose of this study was to identify parental perceptions on immunizations causing Autism Spectrum Disorders (ASDs), and identify whether or no these perceptions influenced whether or not a parent vaccinated their child. In the past several decades, there have been a number of studies that have examined the link (or lack thereof) of vaccinations and ASDs, (Wakefield et al., 1998; National Statistics, T.I.C.,2005; Immunization Safety Review Committee, Board on Health Promotion and Disease Prevention & Institute of Medicine, 2001; Smeeth et al.,
2004; Honda, Shimizu & Rutter, 2005; Fombonne et al., 2006; Madsen et al., 2002; Kaye, Mar-Melero, & Jick, 2001; Stehr-Green et al., 2003) but there appear to be very few studies that specifically focus on how parents perceive this matter. This study will focus specifically on parents' thoughts about immunizations causing autism. It will also focus on whether or not they deny their children's vaccinations because of these beliefs.

In the United States, one in four parents believes those immunizations in one way or another cause ASDs (Gross, 2009, pg. 2). In Great Britain, so many people believed that immunizations caused autism that the vaccine rate for MMR dropped from greater than 90% prior to 1998, to a low of 80% in 2003-2004 (Miller & Reynolds, 2009). It is important to keep a steady eye on this population to prevent any further decline of vaccinations, and to prevent an increase of preventable diseases.

This study used a primary data analysis design. Data will be collected from male and female parents who have children under the age of 18 by the survey method. Data were collected based on the availability of participants, and only chosen based on whether they had children under the age of 18. The quantitative research method was chosen
so as to analyze a large population and to gather a more representative sample.

Significance of the Project for Social Work

Determining parental perceptions of immunizations causing autism will have an impact on every aspect of society. It has an impact on the government, communities, and individuals. If it is found that parents have a negative view of immunizations, and feel that there is a possibility that they may cause their child to develop ASDs, parents may be more likely decline vaccinations for their children. If more and more parents decline immunizations for their children, this can lead to an epidemic of diseases that America may not be prepared for.

The significance of this project is relevant to many aspects of social work. If parents are declining vaccinations due to the fear of their child developing ASDs, it will affect every aspect of American society. If people begin to get sick and diseases such as measles spread, it will be the government’s responsibility to take control of the situation and maintain order and safety within the country. This could affect the state and federal
budget, causing more unneeded debt for the country. Schools will be affected due to lack of attendance of students whose parents refuse to get their children vaccinated. If children are not attending school, revenue is lost for the entire school system. Families will be affected due to having to care for a loved one who has developed a disease that was once thought to be extinct. Families will have to sacrifice time and funds to deal with the ailing family member, and individuals will suffer due to having to deal with the pain of the disease.

The significance of this project to social work as a whole will be the increased awareness of this escalating problem. Parents are frantically looking for answers as to why children are developing ASDs at such an alarming rate, and are looking for anything to blame. If this project can contribute even slightly to the awareness of parental views regarding this problem, it may be able to help professionals better understand the concerns many parents have, and be able educate parents who have concerns to eliminate the possibility of an even greater problem emerging. If parents are educated on vaccinations, and understand that numerous studies have been conducted
proving immunizations do not cause autism, it may prevent a host of possible problems that may arise in the future.
CHAPTER TWO
LITERATURE REVIEW

Introduction

Chapter 2 will review the government's perspective, as well as the public's perspective regarding immunizations causing Autism Spectrum Disorders (ASDs). Chapter 2 will also discuss legal issues that have risen from this situation, followed by the examination of theories guiding conceptualization concluding the chapter.

Government Perspective

There has been much speculation over the last two decades over whether or not there is a link between childhood vaccinations, and autism spectrum disorders. Many parents live in constant worry that the vaccines their children are receiving may in fact cause ASDs. The most blamed vaccinations for causing ASDs by the public are the measles, mumps, and rubella vaccine, diphtheria, pertussis, tetanus, and other vaccines that contain the mercury-based preservative thimerosal. Thimerosal was incorporated into vaccines at a low dose in the 1930s to inhibit bacterial growth. The low dose of mercury was never a cause for alarm.
until the 1970s when the public became aware of mercury poisoning. The thought of mercury poisoning became even more cause for alarm in the late 1990s when reports from two longitudinal studies suggested that low amounts of methyl mercury ingested by a pregnant woman can in fact be dangerous to a fetus. Although methlymercury and ethlymercury (thimerosal) are two completely different compounds, the public has been shown to link the two together and find equal harm in them both (Weber, 2008).

While the public systematically debates whether childhood vaccinations contribute to the cause of ASDs, the Center for Disease Control and Prevention (2011) consistently states that there is no evidence that suggest that thimerosal, the MMR vaccination, nor any other vaccine cause ASDs. In fact, thimerosal was taken out of childhood vaccines in 2001 and ASD rates have continued to rise despite its absence. The Center for Disease Control and Prevention also states that the MMR vaccine, along with the Varicella (chickenpox), inactivated polio (IPV), and pneumococcal conjugate vaccine have never contained the component thimerosal. In recent years, modifications have even been made to the influenza vaccine to include vaccinations made with and without thimerosal. Currently,
the amount of influenza vaccinations made without thimerosal is limited, but are expected to increase as vaccine manufacturing capabilities are expanded ("Frequently asked questions," 2011).

Public Perspective
Despite continuous assurance that ASDs are not caused by vaccines by the government and other public health agencies, the public continues to voice their concerns about vaccines causing autism and similar disorders. The public presents two arguments that are used to support the association. The first argument is that the prevalence of autism has increased around the same time infant vaccinations have increased. The second argument is that in some cases, autistic like symptoms become present within a few weeks or months after the administration of certain vaccines (Destefano & Chen, 2001). Research shows that there is an obvious perception that parents believe that there is an environmental factor that contributes to the cause of ASDs. Of the parents that believe that environmental factors contribute to the rise in autism, they see the increases in vaccinations as the most obvious environmental factor. In 1993, infants were only vaccinated
against seven diseases. In current times, infants are vaccinated against 14 diseases for a total of 26 injections by the age of two (Gross, 2009).

The common belief in America is that any mercury-based compound is a neurotoxin that can critically affect brain development (Baker, 2008). In 2001, vaccine manufacturers removed thimerosal from vaccines, further fueling speculation that this compound had something to do with the increase of ASDs ("Frequently asked questions," 2011). Despite evidence that proves that there is no link between immunizations and autism, one in four parents in the United Stated still believe they do. The same holds true for the United Kingdom, where citizens told pollsters in 2002 that they believed "the weight of scientific evidence supports a link between MMR and autism" (Gross, 2009, pg. 2). Due to parents feeling so strongly about immunizations causing autism, there is no surprise that the United Stated saw one of its biggest outbreaks of measles in 2008, one of the first infectious diseases to reappear after it had been deemed eliminated in 2000. The mumps and pertussis (whooping cough) have also made a return since the drop in immunization rates (Gross, 2009).
The belief that immunizations caused autism gained prominence with the release of a study conducted by Wakefield and colleagues which described 12 patients with inflammatory bowel conditions and regressive developmental disorders (mostly autism). In this study, in eight out the twelve cases, the child's parents and pediatrician stated that they believe that immunizations contributed to the cause of behavior problems. Wakefield and colleagues hypothesized that the MMR vaccine may have been responsible for the bowel dysfunction, subsequently leading to neurodevelopmental disorders. This study has been highly criticized due to the small number of cases, and lack of information on the source population and lack of comparison group, as well as the possibility of a coincidental temporal association with MMR vaccination which was not addressed (Destefano & Chen, 2001, pg. 832).

In a study conducted in Utah in 2006, researchers surveyed parents regarding their hesitancy to vaccinate their children. Two major themes were discovered from the data collected: (1) hesitant parents had serious concern about the safety of the vaccine and (2) hesitant parents did not feel there was a need for their child to become vaccinated. The most common concern reported regarding
vaccine safety included the fear of it causing autism, immune system overload, and the potential of severe adverse reactions. This research found that almost 25% of parents had concerns about the safety of vaccines, with the development of autism remaining a common theme among parents despite past educational efforts (Luthy, Beckstrand, & Callister, 2010, pg. 28).

Qualitative research on this issue shows confusion on the part of the parents. On one hand they want their children to be vaccinated; on the other hand they have fears regarding the safety of the vaccine. One mother of six reported, "I believe vaccines play a role in a small percentage of childhood developmental problems -like autism- I don't know if this is true or not with my children, but the risk was great enough for me to delay and have vaccines one at a time with my children" (pg. 28). Another mother stated "I have an older child with autism (2nd child) and then my 4th child started showing signs for concern at 12 months and we stopped immunizing" (pg. 28). This perspective was found to be shared among a number of parents, with the common belief being that parents thought they could divert autism by adjusting the immunization schedule (Luthy, Beckstrand, & Callister, 2010).
Despite some people's perception on immunizations causing ASDs, the Center for Disease Control (CDC) continues to state that immunization rates for infants aged 19 to 35 months remain high. In 2009 it was shown that the coverage for the poliovirus remained high at 92.8%, the coverage for hepatitis B holds at 92.4%, and varicella at 89.6%. Although the CDC claims vaccines are at or near the national health objective 90%, there was a slight decrease in the measles, mumps, and rubella (MMR) vaccine rate which decreased from 92% to 90% ("National, state, and," 2010). Despite these numbers meeting the national health objective, in 2008 there was an outbreak of measles primarily in children whose parents refused to get them vaccinated. Dr. Schuchat of the CDC states that "it is likely that communities with high numbers of under vaccinated or unvaccinated children remain." She also states: "While it's encouraging to see immunization rates remaining high, we know that parents have questions about vaccines and we must continue to educate parents about the importance of vaccination to help avoid future resurgences in serious, preventable illnesses." (CDC Survey, 2010, p. 1).
Legal Issues

As a result of the overwhelming concern that parents have regarding immunizations, there have been thousands of claims submitted to the National Vaccine Injury Compensation Program (Miller & Reynolds, 2009). The first case to be tried by the courts was the Cedillo case. Michelle Cedillo was said to be developing normally until she got her MMR vaccination at the age of two. Shortly after, Michelle developed a 105 degree fever which lasted a week. She also began vomiting and had diarrhea. Eighteen months later Michelle was diagnosed with autism. Believing the MMR vaccination had caused their daughter's autism, the Cedillo family decided to take this matter to court and sued under the National Vaccine Injury Compensation Program (Moreland, 2008).

The National Vaccine Injury Compensation Program (NVICP) was developed to compensate families for injuries associated with vaccinations. In the development of this program, it was unforeseen that there would be over 5,000 cases in eight years linking vaccinations to autism (Moreland, 2008). On February 12, 2009, the U.S. Court of Federal Claims published the decisions regarding these claims which were linked together as a group called the
Omnibus Autism Proceedings. In this case, the courts decided after reviewing over 5,000 pages of transcripts, 939 medical articles, 50 expert reports, and hearing testimony from 28 experts, that thimerosal containing vaccines including the MMR vaccine, were not casual factors in the development of ASDs (Miller & Reynolds, 2009).

Theories Guiding Conceptualization

"The health belief model (HBM) was one of the first theories developed exclusively for health-related behaviors" (Sharma & Romas, 2012, p. 74). Although the HBM is referred to as a model, it meets all criteria to be considered a theory. The HBM contains six constructs which include: (1) perceived susceptibility (the belief that a person has an ability to acquire a disease by partaking in a particular behavior); (2) perceived severity (a person's belief in the extent of harm that may occur from the disease resulting in a particular behavior); (3) perceived benefits (the belief in the advantages of the methods suggested for reducing the risk of the disease); (4) perceived barriers (beliefs about actual and imagined costs of following new behaviors); (5) cues to action (precipitating forces that make a person feel like they
need to take action); (6) self-efficacy (the confidence that the individual has the ability to pursue the behavior) (Sharma, 2011, pg. 3-4).

The health belief model is the most commonly used model to examine health related behaviors. Although this theory is rarely used to determine the factors associated with caregivers vaccinating their children (Chen et al. 2011), this theory can still be applied and is appropriate to use while conceptualizing the cause of parental concern regarding immunizations causing autism. Under this theory, it would proclaim that parents, who refuse to vaccinate their children due to the fear of developing ASDs, do so due to their perceived susceptibility. Perceived susceptibility comes in three states; no possibility of contracting the disease, the possibility of contracting the disease, and extreme possibility of contracting the disease (Sharma, 2011). Some parents, who feel immunizations may cause their child to develop autism, and take it to the extreme of not vaccinating their children, may feel that there is a high probability that their child will develop ASDs.

The perceived benefits may also be examined due to parents weighing the benefits and risks of immunizations.
Parents may feel the risks of immunizations are too risky, and may delay or decline immunizations. They may also feel that they will be greater benefited by bypassing vaccines, and trying alternative methods of dealing with the situation.

Summary

A comprehensive literature review of autism spectrum disorders (ASDs), government perspectives on immunizations causing autism, public perspectives on immunizations causing autism, and legal issues resulting from parents suing under National Vaccine Injury Compensation Program were discussed. The health belief model was also discussed to provide a relevant theoretical structure to aid in the guiding of conceptualization of this matter.
CHAPTER THREE

METHODS

Introduction

This section of the paper will include a detailed description of the method and procedures used to complete this study. This chapter will describe the study design, the sample from which the data will be obtained, data collection procedures and instruments used, procedures, information regarding protection of human subjects, and data analysis which includes the procedures by which the data will be collected.

Study Design

The purpose of this study was to examine parental perceptions of immunizations causing autism, and autism spectrum disorders (ASDs). The study used a quantitative primary data analysis design. Quantitative research was obtained during the specified time period and examined parental perceptions of vaccines causing autism. The research question being examined in this study is: What are parental perceptions on immunizations causing Autism Spectrum Disorders?
Sampling

Data was collected from 78 participants from different internet websites. Fifteen participants were excluded from the study due to either not being familiar with autism, not having a child under the age of 18, or noncompliance which led to the final number of 63 participants. The sample includes men and women recruited by using the social media website Facebook, as well as using online autism forums. The participants were obtained by using the convenience sampling method. The researcher sought to include an equal number of male and female participants as well as participants from a wide range of ethnic backgrounds. The sample however included 14 males and 49 females with the primary ethnicities being Caucasian, African American, and Hispanic.

Data Collection and Instruments

The data for this study was collected through the online survey method using the data collection website www.surveymonkey.com. The survey questions (Appendix A) included whether or not the participants believed immunizations cause autism, questions regarding specific vaccines, or/and if they believed the number of vaccines
given 'cause autism. The independent variables of this study included age, ethnicity, gender, level of education, religion, and whether or not they had a child born with ASD. Age will be measured using the interval level of measurement, level of education will be measured using the ordinal level of measurement, and the remainder of the independent variables will be measured using the nominal level of measurement. The dependent variable will include the perception of vaccines causing ASD. This variable will be measured using the nominal level of measurement.

Procedures

The first step in conducting the current research was to collect the data. Participants were sought out by using the social media website Facebook, as well as online autism forums. The researcher will post the survey on Facebook and online autism forums inviting individuals to take the survey if they have a child under the age of 18 (appendix D). Potential participants were then able to click on the link provided in the flyer (https://www.surveymonkey.com/s/SHANAEBLAKE), which directed them to the researcher's survey. Participants were filtered out based on if they had at least one child under
the age of 18, and if they were familiar with autism spectrum disorders. If participants chose "no" for either question, they were unable to access the remainder of the survey and were redirected to another page thanking them for their time. Due to the survey being online, participants were able to complete the survey at their own leisure. Once the researcher was satisfied with the number of participants that completed the survey, the data was then collected by the researcher and the survey was closed and inaccessible to the public.

Protection of Human Subjects

The protection of the rights and welfare of all voluntary participants were protected in accordance with the Institutional Review Board standards. All information was and will remain confidential, and no identifiable information was obtained. All questionnaires completed by participants were done without the researchers' presence. It was the sole choice of the participants as to where and when they complete the survey. The participant's completed surveys remained under the care of the researcher, and was kept password protected under the surveymonkey.com website. Due to the lack of identifiable information on the
questionnaires, the risks to human subjects were minimal. Upon completion of the study, all questionnaires were destroyed.

Data Analysis

Quantitative data analysis techniques were used in this study to determine parental beliefs about immunizations, and their beliefs about the possibility of immunizations causing autism. Descriptive statistics will be used to summarize demographic data. Relationships between categorical variables including Likert scale items were examined using chi-square test of independence at a .05 significance level.

Summary

A quantitative method of research was used in the current study. Chi-square tests were used to analyze the data. The study included a total of 63 participants that were gathered from the online social media website Facebook, as well as autism forum websites. No identifiable information was gathered in order to protect client confidentiality.
CHAPTER FOUR

RESULTS

Introduction

The purpose of this study was to identify parental perceptions on immunizations causing Autism Spectrum Disorders (ASDs), and to discover whether or not these perceptions influenced whether or not a parent vaccinated their child. The term Autism Spectrum Disorders is used throughout this paper due to the researcher wanting to include all Autism Spectrum Disorders (ASDs) which include autism, Asperger's, Rett syndrome, childhood disintegration disorder, and pervasive developmental disorders not otherwise specified (often referred to as PDD-NOS). In order to analyze any relationships between parent's perceptions and their decision to vaccinate their children, primary quantitative data was obtained using an online survey method. This was an exploratory study which sought to find if there was any relationship between parent's perceptions on vaccinations causing autism, and whether or not this influenced vaccinating their children. Univariate and bivariate data analyses were completed in order to obtain the study's results.
Presentation of the Population

A total number of 78 participants attempted to complete the survey, but 15 participants were excluded from the study due to either not being familiar with autism, not having a child under the age of 18, or noncompliance. Excluding these participants from analyses resulted in a total of 63 parents who completed the survey. Gender, ethnicity, education, income, age, and religion data is presented. Of the participants gathered, 20.6% of males and 71.4% females completed the survey. A total number of 5 (7.9%) participants did not complete the gender portion of the survey which left the total percentage of participants that answered the question at 92.1. This will be demonstrated in the table 1.

Table 1. Gender Frequency Count and Percentages.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13</td>
<td>22.4</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
<td>77.6</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>92.1</td>
</tr>
</tbody>
</table>
Of the participants presented in the study, 35% were Caucasian, 32% were African American, 16% were Hispanic, 5% were either Asian or Pacific Islander, while a little over 3% of the participants were Native American. Of the 63 participants that completed the survey, 5 (8%) did not answer the question related to ethnicity. See Table 2 below for reference.

Table 2. Ethnicity Frequencies and Percentages.

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>22</td>
<td>34.9</td>
</tr>
<tr>
<td>African American</td>
<td>20</td>
<td>31.7</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10</td>
<td>15.9</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>4</td>
<td>4.8</td>
</tr>
<tr>
<td>Native American</td>
<td>2</td>
<td>3.3</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>91.1</td>
</tr>
</tbody>
</table>

Frequencies were run on the education level of participants. 2% did not complete college, 5% completed college, 8% completed one year of college, 11% completed two years of college, 10% completed three years of college, 33% graduated from college, 11% have attended some graduate
school while 13% completed graduate school. Five (8%) participants did not answer the question regarding education. This is reflected in Table 3 below.

Table 3. Education Frequencies and Percentages.

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequencies</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not complete high school</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>Completed high school</td>
<td>3</td>
<td>4.8</td>
</tr>
<tr>
<td>One year of college</td>
<td>5</td>
<td>7.9</td>
</tr>
<tr>
<td>Two years of college</td>
<td>7</td>
<td>11.1</td>
</tr>
<tr>
<td>Three years of college</td>
<td>6</td>
<td>9.5</td>
</tr>
<tr>
<td>Completed college</td>
<td>21</td>
<td>33.3</td>
</tr>
<tr>
<td>Some graduate school</td>
<td>7</td>
<td>11.1</td>
</tr>
<tr>
<td>Completed graduate school</td>
<td>5</td>
<td>12.7</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>92.1</td>
</tr>
</tbody>
</table>

Frequencies were also run on the participants pertaining to religion. Of the participants, 62% identified themselves as Christians, 21% were Catholic, 6% reported to having no religion, 6% reported to having another religion which included 1 Wiccan, 2 The Church of Jesus Christ Latter-Saints, and 1 individual reporting to be Baptist. No participants identified themselves and either Muslim or
Jewish. Three participants did not answer the religion portion of the survey. This is reflected in Table 4 below.

Table 4. Religion Frequencies and Percentages.

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequencies</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christian</td>
<td>39</td>
<td>61.6</td>
</tr>
<tr>
<td>Catholic</td>
<td>13</td>
<td>20.6</td>
</tr>
<tr>
<td>Muslim</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Jewish</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>No religion</td>
<td>4</td>
<td>6.3</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>6.3</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>94.8</td>
</tr>
</tbody>
</table>

Of the participants who answered the age section of the survey, 3% were between the ages of 18-25, 35% were between the ages of 26-35, 33% were between the ages of 36-45, 16% were between the ages of 46-55, 5% were between the ages of 56-65, while 2% were 66 or older. 6% did not answer the question about their age. See Table 5 below.
Table 5. Age Frequencies and Percentages.

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequencies</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25</td>
<td>2</td>
<td>3.2</td>
</tr>
<tr>
<td>26-35</td>
<td>22</td>
<td>34.9</td>
</tr>
<tr>
<td>36-45</td>
<td>21</td>
<td>33.3</td>
</tr>
<tr>
<td>46-55</td>
<td>10</td>
<td>15.9</td>
</tr>
<tr>
<td>56-65</td>
<td>3</td>
<td>4.8</td>
</tr>
<tr>
<td>66 and older</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>59</strong></td>
<td><strong>93.7</strong></td>
</tr>
</tbody>
</table>

Income was also examined and the data indicated that 10% made between $0-$24,999, 14% made between $25,000-$49,999, 22% made between $50,000-$74,999, 16% made between $75,000-$99,999, 18% made between $100,000-$124,999, 3% made between $125,000-$149,999, 5% made between $150,000-$174,999, and 5% made above $200,000. Five participants did not select an income. See Table 6 below.
Table 6. Income Frequencies and Percentages.

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequencies</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0-$24,999</td>
<td>6</td>
<td>9.5</td>
</tr>
<tr>
<td>$25,000-$49,999</td>
<td>9</td>
<td>14.4</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>14</td>
<td>22.2</td>
</tr>
<tr>
<td>$75,000-$99,999</td>
<td>10</td>
<td>15.9</td>
</tr>
<tr>
<td>$100,000-$124,999</td>
<td>11</td>
<td>14.8</td>
</tr>
<tr>
<td>$125,000-$149,999</td>
<td>2</td>
<td>3.2</td>
</tr>
<tr>
<td>$150,000-$174,999</td>
<td>3</td>
<td>4.8</td>
</tr>
<tr>
<td>$200,000 and up</td>
<td>3</td>
<td>4.8</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>93.7</td>
</tr>
</tbody>
</table>

Presentation of the Findings

The present study was based upon a representative sample of 63 male and female participants were examined in order to determine their beliefs of immunizations causing autism from a parent's perspective. Table 7 which are presented below presents frequencies and Chi-Square analyses for respondents' decision to vaccinate all of their children by their beliefs about whether vaccinations and immunizations cause ASD.
Table 7. Vaccinated all Children by Beliefs about Immunizations/Vaccinations.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Vaccinated All Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Believe Immunizations Cause ASD**(n =56)**</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12.2</td>
</tr>
<tr>
<td>No</td>
<td>44.9</td>
</tr>
<tr>
<td>I Don't Know</td>
<td>42.9</td>
</tr>
<tr>
<td>Believe Vaccinations Cause Autism(n = 53)</td>
<td></td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>4.3</td>
</tr>
<tr>
<td>Agree</td>
<td>10.9</td>
</tr>
<tr>
<td>Don’t Know/Not Sure</td>
<td>47.8</td>
</tr>
<tr>
<td>Disagree</td>
<td>23.9</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>13.0</td>
</tr>
<tr>
<td>Believe Flu Vaccination Causes ASD(n= 53)</td>
<td></td>
</tr>
<tr>
<td>Strong Agree</td>
<td>2.2</td>
</tr>
<tr>
<td>Agree</td>
<td>2.2</td>
</tr>
<tr>
<td>Don’t Know/Not Sure</td>
<td>45.7</td>
</tr>
<tr>
<td>Disagree</td>
<td>34.8</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>15.2</td>
</tr>
<tr>
<td>Believe Tetanus Vaccination Causes ASD(n=53)</td>
<td></td>
</tr>
<tr>
<td>Strong Agree</td>
<td>2.2</td>
</tr>
<tr>
<td>Agree</td>
<td>2.2</td>
</tr>
<tr>
<td>Don’t Know/Not Sure</td>
<td>47.8</td>
</tr>
<tr>
<td>Disagree</td>
<td>32.6</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>15.2</td>
</tr>
</tbody>
</table>

Believe Whooping Cough Vaccination Causes ASD (n = 42)

| Strong Agree | 2.2 | 0.0 |
| Agree | 0.0 | 0.0 |
| Don't Know/Not Sure | 50.0 | 28.6 |
| Disagree | 32.6 | 71.4 |
| Strongly Disagree | 15.2 | 0.0 |

** p < 0.01

Table 7 shows that there was a statistically significant association between respondents' decision to vaccinate all of their children and their belief about immunizations causing ASD, $\chi^2(2, N = 56) = 10.06, p = .007$, however it must be noted that three (50%) cells contain less than five observations. Nevertheless, this association is worth noting and will be further discussed in chapter five.

Frequencies and Chi-square analysis were also performed for respondents' decision to vaccinate all of their children for ASD by their belief about vaccinations causing ASD, $\chi^2(4, N = 53) = 1.23, p = .87$, and there was
no statistically significant association between these two variables.

Table 8 which is presented below presents frequencies and Chi-Square analyses for respondents’ decisions to refuse or delay vaccinations for their children in comparison to them vaccinating all of their children.

Table 8. Vaccinated all Children by Controversy Between Autism Spectrum Disorders and Vaccines.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Vaccinate all Children</th>
<th>Yes%</th>
<th>No%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does/did the immunization/ASD controversy cause you to refuse vaccinations for any of your children? (n = 56)**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>45.5</td>
<td>54.5</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>97.7</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>I Don’t Know</td>
<td>1.00</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Does/did the immunization/ASD controversy cause you to delay vaccinations for any of your children? (n= 56)**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62.5</td>
<td>37.5</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>97.4</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>I Don’t Know</td>
<td>1.00</td>
<td>0.0</td>
<td></td>
</tr>
</tbody>
</table>

**p < .000

Table 8 presents frequencies and Chi-square analyses for respondents’ which shows that there is a statistically
significant association between parents' refusing vaccinations for their children, and whether or not they vaccinated all of their children, $\chi^2(1, N = 56) = 21.64, p = .000$. It must be noted however that three cells (50.0%) have expected count less than five. Table 8 also shows that there was a statistically significant association between parents' delaying vaccinations for their children, and whether or not they vaccinated all of their children, $\chi^2(1, N = 56) = 12.13, p = .000$. It must also be noted that two cells (50.0%) have expected count less than five observations. The association between these two sets of variables will be later discussed in chapter five.

Table 9 presents frequencies and Chi-square analyses for respondents' in relation to their beliefs on whether or not the immunization/ASD controversy caused them concern while vaccinating present and future children, and whether or not they actually vaccinated their children.
Table 9. Vaccinated all Children While Having Concerns about Vaccines Causing Autism Spectrum Disorders.

<table>
<thead>
<tr>
<th>Vaccinate All Children</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does/did the immunization/ASD controversy cause you concern while vaccinating any of your children? (N = 56)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>78.8</td>
<td>21.2</td>
</tr>
<tr>
<td>No</td>
<td>1.00</td>
<td>0.0</td>
</tr>
<tr>
<td>I don’t know</td>
<td>1.00</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Does/did the immunization/ASD controversy cause you concern for Vaccinating any of your future children? (N = 56)**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>72.7</td>
<td>27.3</td>
</tr>
<tr>
<td>No</td>
<td>95.7</td>
<td>4.3</td>
</tr>
<tr>
<td>I don’t know</td>
<td>1.00</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**p < .025

The analysis shows that there was no statistical significance between parents’ concerns about vaccines causing autism, and whether or not they vaccinated their child $\chi^2 (2, N = 56) = 5.57, p = .062$. The Chi-square analyses did however show that there was a statistical significance between parents’ concerns about ASD causing autism in their future children, and getting their children
vaccinated \( \chi^2(2, N = 56) = 7.35, p = .025 \). This association is will be further discussed in chapter five.

Table 10 presents frequencies and Chi-square analyses for respondents' decision to vaccinate all of their children while having a child with ASD, or knowing someone outside of their immediate family that has an ASD.

Table 10. Vaccinated all Children While Having a Child or Knowing Someone with Autism.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Vaccinate all Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Do any of your children have an ASD? ((N = 55))</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>34.7</td>
</tr>
<tr>
<td>No</td>
<td>65.3</td>
</tr>
<tr>
<td>Do you know of anyone outside of your immediate family with ASDs? ((N = 56))</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>69.4</td>
</tr>
<tr>
<td>No</td>
<td>30.6</td>
</tr>
</tbody>
</table>
There was no statistically significant association found between respondents' decision to vaccinate all of their children despite having a child with an ASD, $\chi^2(1, N = 55) = .541, p = .46$. There was also no statistically significant association found between respondents' decision to vaccinate all of their children despite knowing someone outside of their family with an ASD, $\chi^2(1, N = 55) = .012, p = .91$.

Table 11 presents frequencies and Chi-square analyses to determine if there were any correlations between ethnicity, and the belief that vaccinations cause autism.

Table 11. Belief that Vaccinations Cause Autism Spectrum Disorders by Ethnicity.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Agree%</th>
<th>Don't Know%</th>
<th>Disagree%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian (n = 22)</td>
<td>13.6</td>
<td>50.0</td>
<td>36.4</td>
</tr>
<tr>
<td>African American</td>
<td>25.0</td>
<td>25.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Hispanic (n = 10)</td>
<td>20.0</td>
<td>70.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Note that four cells (44.4%) have expected count less than five.
Table 11 presents results from a Chi-Square analysis. This data shows that there is no statistical significance between ethnicity and their beliefs on if immunizations cause autism, $\chi^2 (4, N = 52) = .138, p = 6.7$. The Asian/Pacific Islander and Native American population were excluded due to a lack of representation. These results will be discussed further in chapter five.

Table 12 presents frequencies and Chi-square analyses to determine if there were any correlations between education, and the belief that vaccinations cause autism.

Table 12. Belief that Vaccinations Cause Autism Spectrum Disorders by Income.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Agree%</th>
<th>Don't Know%</th>
<th>Disagree%</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0-$49,999 (n = 15)</td>
<td>20.0</td>
<td>53.3</td>
<td>26.7</td>
</tr>
<tr>
<td>$50,000-$99,999 (n = 24)</td>
<td>20.8</td>
<td>33.3</td>
<td>5.8</td>
</tr>
<tr>
<td>$100,000-$124,999 (n = 11)</td>
<td>18.2</td>
<td>81.8</td>
<td>0.0</td>
</tr>
<tr>
<td>$125,000 and higher (n = 8)</td>
<td>37.5</td>
<td>0.0</td>
<td>62.5</td>
</tr>
</tbody>
</table>

$p < .014$
The Chi-Square analysis shows that there is a statistically significant association between income and the belief that vaccinations cause autism, $\chi^2(6, N = 58) = 0.014$, $p = 15.9$. However, it must be noted that seven cells (58.3%) have an expected count less than five. These variables will be discussed further in chapter five.

Table 13 uses a Chi-Square analysis to determine whether or not there is an association between parents' who have a child with an ASD, and their beliefs on immunizations causing autism.


<table>
<thead>
<tr>
<th>Variables</th>
<th>Believe Immunizations Cause ASD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do any of your Children have an Autism Spectrum Disorder?</td>
<td></td>
</tr>
<tr>
<td>Yes $(n = 20)$</td>
<td>% 5.0 65.0 30.0</td>
</tr>
<tr>
<td>No $(n = 39)$</td>
<td>% 17.9 23.1 59.0</td>
</tr>
</tbody>
</table>

$p < .006$
The variables age and the belief of vaccinations causing autism were compared and no statistical significant relationship was found \( \chi^2 (4, N = 63) = .949, p = .72 \).

The variables education and the belief of vaccinations causing autism were also compared with no significant statistical association being found, \( \chi^2 (6, N = 58) = .438, p = 5.9 \).

Frequencies were also performed on the variables: "If the ASD/Immunization controversy caused parents to more likely or less likely vaccinate their children in the future"; parent's satisfaction with their knowledge of ASDs; parent's satisfaction with their knowledge of the risks and benefits of vaccinations; the belief of the more vaccinations given to children, the more likely they were to develop an ASD; whether or not they believe vaccinations cause autism; and whether or not they believe children are given too many immunizations.

In regards to the ASD/Immunization controversy causing parents to more likely or less likely vaccinate their children in the future, data shows that 11(17.9%) of 62 parents would definitely be less likely to vaccinate their children in the future, if they planned to have more
children; 14 parents (22.2%) might be less likely to vaccinate their children in the future; 5 parents (7.9%) might be more likely to vaccinate their children in the future; 20 (31.7) I would definitely be more likely to vaccinate their children in the future; while 12 parents (19%) were not sure.

In regards to parent's satisfaction of their knowledge of ASDs, 11 (17.5%) parents strongly agreed that they are satisfied with their knowledge of ASDs; 17 (27.0%) agree that they are satisfied with their knowledge of ASDs; 10 (15.9%) stated that they did not know; 21 (33.3) disagreed in regards to their satisfaction with their knowledge of ASDs; while 3 (4.8%) of participants strongly disagreed to being satisfied with their knowledge of ASDs.

In regards to the question: "I am satisfied with my knowledge about the risks and benefits of vaccinations", 11 (17.5%) of participants strongly agreed; 21 (33.3) agreed; 10 (15.9%) were unsure; 17 (27.0%) disagreed; and 4 (6.3%) strongly disagreed.

In regards to the question: "The belief that the more vaccinations given to children, the more likely they were to develop an ASD", 1 (1.6%) participants strongly agreed;
10 (15.9%) agreed; 24 (38.1%) were not sure; 18 (28.6%) disagreed; and 7 (11.1%) strongly disagreed.

In regards to the question: “Do you believe immunizations cause ASDs”, 13 (20.6%) participants believed immunizations cause ASDs; 23 (36.5%) do not believe immunizations cause ASDs; and 27 (42.9%) were unsure.

In regards to the question: “I believe children are given too many vaccinations”, 10 (15.9%) of participants strongly agreed; 21 (33.3%) agreed; 12 (19.0%) didn’t know or was not sure; 14 (22.2%) disagreed; and 3 (4.8%) strongly disagreed.

Summary

Both univariate and bivariate data analysis were performed in order to obtain statistical results. The researcher used frequency distribution as well as Chi-square analysis to examine the potential relationships between whether or not parents vaccinated all of their children based on various independent variables. Frequencies were also used in order to determine any potential relationships between demographic variables. Data analyses results indicated statistically significant correlations between respondents’ decision to vaccinate all
of their children for ASD and their belief about immunizations causing ASD, parents' refusing vaccinations for their children, and whether or not they vaccinated all of their children, there is a statistically significant association between parents' refusing vaccinations for their children, and whether or not they vaccinated all of their children and is a statistically significant association between income and the belief that vaccinations cause autism.
CHAPTER FIVE

DISCUSSION

Introduction

In the next chapter, the researcher will discuss and examine the study’s significant findings and implications. The researcher will also examine the limitations of the study, as well as provide future recommendations for social work practice, policy and research.

Discussion

The study examined parents’ perspectives on immunizations causing ASDs. More specifically, the researcher sought to discover if parents’ perspectives about immunizations causing autism had any influence on whether or not they vaccinated all of their children. Due to this project being an exploratory study, parents’ perspectives on various other variables were examined as well.

According to the participants who completed this section of the survey, 20% of parents’ believed that immunizations caused ASDs, 37% did not believe immunizations caused ASDs, while 43% were unsure. The
variables of whether or not parents' believed immunizations caused autism was compared to whether or not they vaccinated all of their children. The results show that there was a statistically significant association between respondents' decision to vaccinate all of their children and their belief about immunizations causing ASDs. Of the parents who believed that immunizations caused autism, 60% still vaccinated all of their children while 40% did not. One study's results showed that 90% of parents believed that vaccines are a good way to protect their children, while 88% do what their doctor recommends regarding vaccinations (Freed, Clark, Butchart, Singer & Davis, 2010). This suggests that parent's may be more concerned about the diseases their child may contract if they are not vaccinated, rather than their child developing autism. For the parents that did not believe that immunizations caused autism, 100% vaccinated all of their children. For those who were unsure, 88% vaccinated all of their children. For those parents who did not vaccinate all of their children, their responses for why they did not vaccinate all of their children included: "My youngest has just 1 shot, and I stopped all vaccinations for my other kids about 1 month after my daughter was diagnosed. Wasn't worth the risk of
vaccinating in case it was a partial cause of autism” (Participant 23, personal communication, September, 2012); “My fifth child had an awful reaction to an unnecessary vaccination. You hear so many conflicting things on vaccines. I believe some are good and some are not. I definitely disagree with how quickly they schedule the vaccines. I want to do them slower” (Participant 49, personal communication, September, 2012); “Second child, now 15 months, has not received any vaccines. His brother, now 7 years old, had bad reactions to his child vaccinations and we stopped at his 24th dose just before his 3rd birthday. We believe his autistic behavior was caused by the current vaccination schedule. Our 7 year old received a provisional diagnosis of autism at age 3 and lost it at age 6. We believe out 7 year old lost his autism diagnosis for 3 reasons: Extensive therapy and behavior modification; changes to his diet including supplements: and we stopped childhood vaccinations completely” (Participant 17, personal communication, September, 2012); “autism scare” (Participant 19, personal communication, September, 2012); and “My mother doesn't believe in shots” (Participant 37, personal communication, September, 2012) Despite the relatively small sample size, differences can
be seen by those who believe or are unsure vaccinations cause ASDs, and those who do not believe immunizations cause ASDs. Data also showed that having a child with an ASD or knowing someone with an ASD showed no statistical difference on whether or not parents vaccinated all of their children.

A parent’s choice to refuse or delay vaccinations for their children has also shown statistically significant results despite having a limited amount of participants in three cells. 21% of the parents stated they have refused vaccinations for at least one of their children due to the immunization/ASD controversy, while 76% of participants vaccinated all of their children despite this controversy. 27% of participants claimed to delay vaccinations for their children while 66% of participants did not delay any vaccinations. The 27% of parents who delayed vaccinations indicates the possibility that they believe that the amount of vaccinations given to a child at one time may cause autism. By spreading out or delaying the vaccinations, it seems as if they believe this method reduces the probability that their child will develop autism. One article suggests that for those who delay or refuse vaccinations for their children have vaccine safety
concerns and believe that they provide fewer benefits than those who vaccinate their children on the recommended schedule (Smith, Humiston, Marcuse, Zhao, Dorell, Howes & Hibbs, 2011). This is another probability as to why parents' refuse or delay vaccinations.

Various demographics were also examined to determine whether or not they had any influence on parents' beliefs that immunizations caused autism. Income and the belief that immunizations cause autism have shown to have some relation. Although the assumption of at least five observations per cell was violated in the Chi-square statistic in Table 12, the marked differences in the belief that vaccinations cause ASD and income is a very interesting finding. A larger percentage (62.5%) of the highest income earners ($125,000 and above) disagreed that vaccinations cause ASD, followed by the second highest income level ($50,000 to $99,999) at 45.8%, then the lowest income level ($0 to $49,999) at 26.7%. Interestingly, the third highest income level ($100,000 to $124,999) had the highest percentage of "Don't Know" responses at 81.8%, and none disagreed. In terms of income, most individuals associate high income with high education. With this connection in mind, it seems the more money an individual
makes, the more educated they are in matters that relate to immunizations. However, no significant correlation was found between parents' beliefs that immunizations cause autism, and education. This may be due to the small sample size.

The variables age, ethnicity, and education appear to have no influence on whether or not parents' vaccinate all of their children however a similar study has shown a relationship between ethnicity and the belief that immunizations cause autism. This study shows that 37% of Hispanics were more likely than Caucasians (22%) and African Americans (23%) to believe immunizations caused autism. They also state that African Americans (15%) were more likely than Caucasians (12%) and Hispanics (5%) (Freed, Clark, Butchart, Singer & Davis, 2010).

The overall results of this study show that the majority of parents' vaccinate their children despite having concerns that they might cause ASDs. A little less than half (45%) of parents are unsatisfied with their knowledge of ASDs, and 51% are unsatisfied with their knowledge of the risks and benefits of vaccinations in general. These statistics may reveal why parents have so many concerns about vaccinations causing ASDs. The large
amount of individuals who responded "I don’t know" to some of the questions is also something to note. 47% of participants selected "I don’t know" when asked if they believed that vaccinations caused autism. This can suggest many things. One option is the lack of education about vaccinations and autism. Often people fear what they do not understand. Schools and doctors do not make it easy when a parent wants to refuse or delay a vaccination. Parents may feel pressured or guilty for refusing or delaying a vaccination. Another option is the conflicting stories people hear from the news, television, and other individuals. When an individual continuously hears conflicting stories, it can be hard to determine what is fact or fiction. All in all, many parents are unsure if vaccinations cause autism, many are concerned that it might, but in the end most get their child vaccinated anyway.

Limitations

A significant limitation to this study was a lack of participants. With a small sample size is harder to determine whether there really is a correlation between variables, or if the sample size was too small to show any
difference. All of the Chi-squares that showed statistical significance between two or more variables had between one and six cells with an expected count less than five. If the sample was larger, this may not have been the case. A small sample size also negatively impacted the examination of several variables. The researcher was not able to get a representative sample of men, different religions, and different ethnicities. It would have been interesting to examine if men had different perspectives than women, and if different ethnicities such as Asians had a different perspective than Caucasians, African Americans, and Hispanics. Some participants' lack of completing some of the demographic questions also had an impact on the number of participants examined by ethnicity, religion, and education.

Recommendations for Social Work Practice, Policy, and Research

This study only provided a small glimpse as to whether or not parents are withholding or refusing vaccinations due to the belief that immunizations cause autism, as well as parent's perspectives on vaccinations in general. This is an issue that continuously arises, which continuously needs
to be addressed. A recent study published by the Journal of Pediatrics in March 29, 2013 states that about one third of parents still believe that vaccines cause autism, despite the many attempts of the government to prove otherwise. They also mention that 10% refuse of delay vaccinations because they believe it is safer than what the Centers for Disease Control suggest. One major reason they refuse or delay vaccinations is due to them fearing that their child is receiving too many vaccinations in one day, and too many in the first 2 years of life (DeStefano, Price & Weintraub, 2013).

Social work as a profession can contribute to the confusion many parents face in regards to this issue in a one very important way, education. Social workers provide information in a variety of settings which can include hospitals, mental health offices, schools, conferences, and endless more settings. Social workers who work with families; particularly single parents, low income families, or new parents may be lacking the education on immunizations and autism. It is a social workers responsibility to provide precise and unbiased information to clients. Social workers who work with the public should be educated on these issues themselves. They should be able
to provide accurate information on the spot to clients who have concerns about the pros and cons of immunizations. Agencies can make it a routine to hand out information about immunizations and safety concerns to families they service. Obtaining information for a caring professional may be able to clear up some of the confusion many parents have.

Conclusions

It is known that the issue over immunizations causing autism is a major public concern. This can be attributed to the rising autism rates, lack of consistency with information that is being provided, or the fact that since there is no known cause for autism; people are looking for something to blame. Regardless to anyone's beliefs, more and more parents are deciding to alter or refuse vaccinations for their children which can cause another major health concern. The media, the government, and other public service agencies need to make it more of a priority to inform parents about immunizations and autism as individuals and/or correlating factors. More publicized studies as well as a consistency of information being provided can aid in reducing the confusion or fear many
parents have about immunizations causing autism or
immunizations in general. Until society is comfortable with
the information they receive, it will continue to be an
escalating public health concern.
APPENDIX A

QUESTIONNAIRE
Questionnaire for Parents

PART 1

The following questions are asked to gain information pertaining to your knowledge of ASDs, values, and background. Please circle the appropriate answer to record your response.

1. Are you familiar with Autism Spectrum Disorders (ex. Autism, Aspergers, Rett syndrome) and have at least one child under the age of 18? If you answer is "NO" to either of these questions, thank you for your time. If "YES", please continue.

2. Do any of your children have an ASD?

3. Do/did you vaccinate any of your children? (If "Yes," please answer "Yes" and go to the next question, otherwise skip the next question and go to question 5).

4. Did you vaccinate all of your children? (If "No," please explain why you did not vaccinate all of your children).

5. Do you know of anyone outside of your immediate family with ASDs?

6. Do you believe that the rate of Autism or Asperger’s disorder is increasing in the United States?

7. Are you familiar with the ASDs and immunization controversy?

8. Do you believe immunizations cause ASDs?

9. Does/did the immunization/ASD controversy cause you to refuse vaccinations for any of your children?

10. Does/did the immunization/ASD controversy cause you to refuse vaccinations for your child?

11. Does/did the immunization/ASD controversy cause you to delay vaccinations for your child?

12. Does/did the immunization/ASD controversy cause you concern while vaccinating any of your children?

13. Does the ASD/immunization controversy cause you concern for vaccinating future children, if you ever thought about having anymore children?

PART 2

The following questions are related to your personal beliefs about vaccinations and the cause of ASDs. Please read each question carefully and circle the answer that best describes your beliefs using this four point Likert scale.
14. Would the ASD/immunization controversy cause you to more likely or less likely vaccinate your children in the future?

1. I would DEFINITELY be LESS likely to vaccinate my children in the future, if I planned to have more children.

2. I MIGHT be LESS likely to vaccinate my children in the future, if I planned to have more children.

3. I MIGHT be MORE likely to vaccinate my children in the future, if I planned to have more children.

4. I would DEFINITELY be MORE likely to vaccinate my children in the future, if I planned to have more children.

5. I don’t know

15. I am satisfied with my knowledge of ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

16. I am satisfied with my knowledge about the risks and benefits of vaccinations.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

17. I believe vaccinations cause ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

18. I believe biological factors cause ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

19. I believe other factors such as genetics cause ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

20. I believe other non-biological factors cause ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

21. I believe the MMR (Measles Mumps, Rubella) vaccination causes ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

22. I believe the Influenza (Flu) vaccination causes ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

23. I believe the Tetanus vaccination causes ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

24. I believe the Whooping Cough vaccinations causes ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

25. I believe another vaccination not mentioned above causes ASDs.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

26. I believe that the more vaccines given to children, the more likely that ASDs will occur.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree

27. I believe children are given too many vaccinations.

1. Strongly Agree

2. Agree

3. Disagree

4. Strongly Disagree
PART 3

The following questions are asked to gain a little information about your background. Please circle the appropriate answer. REMEMBER: All answers will remain confidential.

1. What is your age?
   - 18-25
   - 26-35
   - 36-45
   - 46-55
   - 56-65
   - 66 or older

2. What is your ethnicity?
   - 1. Caucasian
   - 2. African American
   - 3. Hispanic
   - 4. Asian/Pacific Islander
   - 5. Native American
   - 6. Other (Specify)

3. What is your gender?
   - 1. Male
   - 2. Female

4. What is your religion?
   - 1. Christian
   - 2. Catholic
   - 3. Muslim
   - 4. Jewish
   - 5. No religion
   - 6. Other (please specify)

5. What is the highest level of education you have completed?
   - 1. Did not complete high school
   - 2. High School
   - 3. 1 year of college
   - 4. 2 years of college
   - 5. 3 years of college
   - 6. College graduate
   - 7. Some graduate
   - 8. Completed graduate school

6. What is your annual income?
   - 1. Less than $25,000
   - 2. $25,000- $35,000
   - 3. $36,000- $45,000
   - 4. $46,000- $60,000
   - 5. $61,000- $75,000
   - 6. $76,000- $100,000
   - 7. More than 100,000

Survey developed by Shanae Blake
APPENDIX B

FLYER
Do you have at least one child under the age of 18?
If so.....

You are invited to participate in a study being conducted by Shanae Blake, a MSW student at California State University, San Bernardino.

This survey will measure parents perceptions on whether or not they believe immunizations are the cause of Autism, and other Autism Spectrum Disorders.

To participate in this survey, please fill out the questionnaire by clicking on the following link:
https://www.surveymonkey.com/s/SHANAEBLAKE

It will only take 5 to 10 minutes

This Study has been approved by the Institutional Review Board, Social Work Sub Committee of California State University, San Bernardino

Please pass on this information to your fellow parents by reposting the link:
https://www.surveymonkey.com/s/SHANAEBLAKE.

It will be greatly appreciated. Thank you for your time and cooperation.
APPENDIX C

INFORMED CONSENT
INFORMED CONSENT

The study in which you are being asked to participate is designed to examine parents' perceptions of whether or not immunizations cause autism. This study is being conducted by graduate student Shanae N. Blake under the supervision of Dr. Herb Shon at California State University, San Bernardino (CSUSB). This study has been approved by the School of Social Work Sub-Committee of the CSUSB Institutional Review Board.

PURPOSE: The purpose of this study is to examine parents' perceptions of whether or not immunizations cause autism.

DESCRIPTION: If you choose to participate in this study, you will be asked to fill out a questionnaire regarding your views on immunizations causing autism, as well as questions regarding demographic information.

PARTICIPATION: Participation in this study is completely voluntary. Participants have the right to refuse participation in this study without penalty. Participants may withdraw from participation at any time or skip any question for any reason.

CONFIDENTIALITY AND ANONIMITY: Your response in this study will be kept strictly confidential and anonymous. No identifiable information will be used during your participation in this study.

DURATION: The expected duration in completing this survey is five to ten minutes.

RISKS: There are no foreseeable risks in participating in this study.

BENEFITS: There are no direct benefits from completing this survey.

CONTACT: If you have any questions regarding the study, please contact Dr. Herb Shon at (909) 537- 5532.

RESULTS: The results of this study will be published after September, 2013. To obtain a copy of the results found from this study, you may contact the Pfau library at CSUSB.

CONSENT: Your consent to participate in this study is implied in your completion of the survey.
APPENDIX D

DEBRIEFING STATEMENT
Study of Parents' Perceptions on Immunizations Causing Autism

Debriefing Statement

The study you have just completed conducted by graduate student Shanae Blake, was designed to examine parents' perceptions of immunizations causing autism. In this study your views on vaccine safety were assessed. I am particularly interested in your concerns regarding immunizations causing autism, and if these concerns result in you denying or delaying vaccinations for your children.

Thank you for your participation in this study. If you have any questions about the study, please feel free to contact Dr. Herb Shon at (909) 537-5532. If you would like a copy of the results of this study, please contact the Pfau Library at California State University San Bernardino located at 5500 University Parkway, San Bernardino, CA 92407 after December 2013.
REFERENCES


